authority to ensure "speedy recovery of spectrum." NPRM, ¶¶ 13 and 14. However, the language of Section 201 and the legislative history of the 1996 Act merely direct the Commission to recover spectrum that is licensed to provide for the nation's transition from analog to digital broadcasting. Section 201 cannot be read to imply any Commission authority to preempt state and local authority over the construction and siting of broadcast facilities.

Finally, the NPRM turns to the example of Commission preemption of state and local laws governing the placement of receive-only satellite dishes to support its assertion of preemptive authority. NPRM, ¶ 15. This analogy fails. Section 207 of the 1996 Act required the Commission to "promulgate regulations to prohibit restrictions that impair a viewer's ability to receive video programming services" via direct broadcast satellite services. The Commission's consequent adoption of regulations preempting state and local law governing placement of satellite dishes, while also of questionable validity, had at least some basis in the Act. Here, the Commission has absolutely *no* statutory basis for asserting authority to preempt state and local laws regarding the construction and siting of broadcast facilities.

2. The Balanced Budget Act Does Not Expressly Or Impliedly Authorize the Commission To Preempt State And Local Police Power Over the Siting and Construction of Broadcast Facilities.

The NPRM confuses the timetables set forth in the Balanced Budget Act (BBA)for recovery of analog television spectrum[6] with a broad grant of authority to preempt state and local jurisdiction over siting and construction of broadcast facilities. NPRM, ¶ 2. The express

[6] Balanced Budget Act of 1997, Pub. L. 105-33, 111 Stat. 251 (1997) (codified at 47 U.S.C. §309(j)(14)(A)-(C))(establishing target dates for return and auction of analog spectrum).

language of the BBA demonstrates that, in passing the BBA, Congress did not contemplate a dramatic change in the existing scheme of concurrent federal, state and local jurisdiction over the siting and construction of broadcast facilities.

Had Congress intended the Commission to interfere with state and local authority over the siting and construction of broadcast facilities, it would have provided express authority to the Commission. The BBA includes specific preemption provisions. For example, Section 4001(1) of the BBA establishes a scheme to override state licensing requirements for certain health benefit providers when the state fails to respond to an application within 90 days or imposes unreasonable conditions on licensure. Section 4001(1) of the BBA, 111 Stat. 312-314. Congress' express grant of preemptive authority in one section of the BBA creates a strong presumption that it did not intend to preempt state and local governments in other sections of the bill. This presumption is supported by the BBA's limited directives to the Commission regarding digital television.

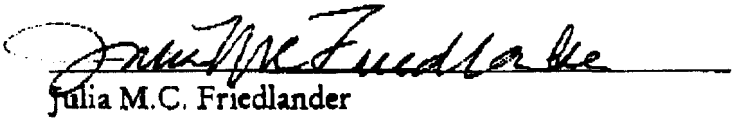
The BBA simply provides that the Commission shall not renew licenses to provide analog television service beyond December 31, 2006 and requires the Commission to auction such licenses and report to Congress regarding the auctions by September 30, 2002. 47 U.S.C. §§ 309(j)(14)(A) and (C)(ii). The BBA does not, either expressly or by implication, authorize the Commission to preempt local decisions which could interfere with the BBA's deadlines. On the contrary, the BBA expressly provides for extensions from the expiration timeline for broadcast stations that cannot meet the Commission's construction deadlines. 47 U.S.C. § 309(j)(14)(B)(i).

Given the BBA's silence on state and local preemption and its express recognition that broadcasters may seek extension of the deadlines it imposes, the Balanced Budget Act gives the Commission no legal authority to preempting state and local police power over the construction and siting of broadcast facilities. As demonstrated, the Commission simply has no legal authority to take such action.

CONCLUSION

For all of the foregoing reasons, the City and County of San Francisco respectfully requests that the Commission reject the National Association of Broadcaster's Proposed Rule to preempt state and local authority over broadcast facilities.

Respectfully submitted by:



Julia M.C. Friedlander
Deputy City Attorney

October 30, 1997

Exhibits

1 7/11/97 Letter from Eugene Zastrow to Hillary Gitelman
2 Transcript: Sutro Tower Digital Television, Public Hearing on the Draft Environmental Report, July 24, 1997, pp. 25-29

Declaration of Paul Maltzer and Exhibits
Declaration of Yen Yen Chew and Exhibits
Declaration of Robert Passmore and Exhibit
Declaration of Richard Lee

SUTRO TOWER, INC.
1 La Avanzada Street
San Francisco, CA 94131-1124
(415) 681-8850 • Fax: (415) 681-6754

July 11, 1997

Ms. Hillary Gitelman
Environmental Review Officer
Department of City Planning
1660 Mission St.
San Francisco, CA 94103

Dear Hillary:

I'd like to take this opportunity to thank you, Paul Maltzer and the rest of your staff for the work you've done during the planning and approval process of our digital television project.

Although there have been a number of delays associated with DTV arising from a variety of sources outside of City Planning, I have found the Office of Environmental Review to be consistently diligent and helpful in moving the project forward. I particularly appreciate your prompt response to the many questions we asked and for Paul's efforts in reviewing the draft EIR's in a very timely fashion.

Thanks again for your cooperation in helping us bring digital television broadcasts to San Francisco.

Sincerely yours,

Eugene S. Zastrow
Vice President &
General Manager

cc: Gerald Green

EXHIBIT 1
TO THE COMMENTS OF THE CITY & COUNTY OF SAN FRANCISCO

PLANNING COMMISSION

CITY AND COUNTY OF SAN FRANCISCO

Sutro Tower Digital Television, Public Hearing on the Draft Environmental Impact Report	)	No. 6. 96.544E

Thursday, July 24, 1997
1:45 o'clock p.m.
401 Van Ness Avenue
Room 428
San Francisco, California

Reported by:
CHRISTINE BRICKNELL

EXHIBIT 2
TO THE COMMENTS OF THE CITY & COUNTY OF SAN FRANCISCO

ADAMS CONVENTION REPORTING
16 Farm Road
San Rafael, California 94903
(415) 472-0350

learning curve on this stuff that may be a bit more complicated than another type of EIR. So, I would be receptive to a short continuance of 30 to 45 days, something along those lines.

VICE PRESIDENT CHINCILLA: I'm beginning to get a sense of the Commission that the Commission would like to extend the comment period by 30 days.

MS. GITELMAN: Commissioner, I think it would be appropriate to allow the project sponsor representative to weigh in on this issue of the extension, just because they may have a feeling strongly one way or the other that would benefit your decision.

VICE PRESIDENT CHINCILLA: All right. Let's go.

MR. McCARTHY: Robert McCarthy on behalf of Sutro Tower.

We are under a federal mandate to be up and running with DTV at the end of 1998. There are only four tower companies in the world who are capable of doing this work. There is a very tight time-line. We have been engaged in community meetings with interested parties in connection with this and the plan for DTV over the period of the last five years.

I think we really need to focus on what

your staff has said to you in connection with the question of what this document is and whose responsibility it is. It is not our document. It is your department's document. It is not the role of the public to go and -- nor is it their role or obligation or is it necessary for them to go hire outside experts to do this and to incur that expense, because we have an entire city bureaucracy, if you will, responding to it. So far as there are questions, comments, or concerns, it is your staff's requirement to then respond to them.

In addition to which you should understand that at the request of the Department of Health and at the request of your Office of Environmental Review, Sutro Tower provided money to the Department of Health for them to do their own independent review of this matter. So although we made the grant, there was an independent review by the independent body and that body which is charged with health concerns in the city under the charter.

So, we are under a tremendous time constraint. It would take the staff time to respond to the comments. Candidly, we do not think it is necessary nor appropriate, in addition to which this is not like this came as a stealth project. It is a

little hard for Sutro Tower to be stealth about anything, first of all.

Secondly, we have engaged in dialogue with Ramona and Margaret Burgess, and those who are interested, the Linnenbach Family, for the last five years. During that period of five years we have distributed 600 mailings to 400 adjacent neighbors explaining that DTV was -- I'm sorry. Six mailings to 400 parties.

I would also point out in the city attorney may have something to say. The National Association of Broadcasters has petitioned the FCC to remove any land use power from local jurisdictions, not an issue we are trying to fight. We are the ones who actually asked for an EIR. The initial suggestions whether this could be done if they are not adverse impacts. The FCC is considering that based on the delays that are being encountered through no fault of your staff but through the fault of the systemic problems involved with trying to meet technological needs of this society given antiquated land use issues that sit -- regulatory issues that sit in the way of a global economy that is moving at a breakneck speed.

So, I want to tell you and the city attorney can advise you on this that continued delay

is simply going to feed into the petition pending before the FCC. To just simply preempt this because of problems that are being encountered throughout the country, the implementation of DTV because of the use of systems that were put in place to deal with traditional land use matters simply cannot deal with the speed at which the global economy is making demands to get up to speed with technological innovations.

VICE PRESIDENT CHINCILLA: All right. Commissioner Hills.

COMMISSIONER HILLS: Mr. McCarthy, I have a question. One of the speakers during public comments made the point that, in fact, the federally mandated deadline that you are quoting as the end of 1990 is in fact later in 1999. Do you have any response to that?

MS. STEIN: Debra Stein, representing Sutro Tower.

Commissioner, we have to look into that. The best of our legal counsel has advised us that Sutro Tower stations need to be on line in 1998. This is the first we have heard a dispute to that. So, we will be cooperating with staff so they can finance that question and to comments.

MS. GITELMAN: Hillary Gitelman --

MR. McCARTHY: I just got clarification. Three of the stations must be up and going by November of '98. The balance by May of '99. But you cannot do one at a time. They all get done at the same time, the same tower.

MS. GITELMAN: Hillary Gitelman, department staff again.

I would just like to acknowledge what Mr. McCarthy said is true, there is a request before the FCC to preempt local jurisdictions in the matter of these antennas. I'm not aware of the time frame of that preemption, and I really do not think it is relevant to your decision today or to your comments today, frankly.

If you would like more information on the status of that request, I would be happy to provide it at a later hearing.

VICE PRESIDENT CHINCILLA: As a threshold issue, why don't we deal with the comment period.

Commissioners, do we extend the comment period or not?

COMMISSIONER ANTENORE: I move -- I feel that a 30-day continuance is a reasonable one. It is not an inordinate delay. It gives people an opportunity to look more carefully at some very

Declaration of Paul Maltzer
in Support of Comments
on Behalf of the City and County of San Francisco
Regarding Preemption of State & Local Regulation of Broadcast Facilities

I, Paul Maltzer, do declare:

1. I am a Senior Environmental Planner in the Major Environmental Analysis division of the San Francisco Planning Department. I have worked for the Planning Department for 14 years. I received a B.A. in Mathematics from the University of California, Berkeley, a J.D. from the University of California, Los Angeles, and a certificate in Environmental Planning from San Francisco State University. I have been a member of the California Bar since 1978. The City's Environmental Review Officer, Hillary Gitelman, assigned me to coordinate the environmental evaluation under the California Environmental Quality Act of proposed modifications to Sutro Tower (the Tower).
2. Sutro Tower is a steel structure extending 977 feet high. The Tower is located on the east peak of Mount Sutro. Mount Sutro is one of the highest points in San Francisco and is located near the center of the City. The Tower is located at approximately 834 feet above sea level. The peak of the Tower thus extends to 1811 feet above sea level. Sutro Tower is the San Francisco Bay Area's tallest structure. On clear days the Tower can be seen from most points within the City and from many points around the Bay. Because the Tower is so visible throughout San Francisco, many residents are concerned about modifications to the appearance of the tower.
3. Sutro Tower is surrounded by land zoned for low density residential uses. The closest residence is located approximately 250 feet from the base of the tower. The closest public

roadway is approximately 150 feet from the base of the tower. With the exception of the University of California at San Francisco Medical Center, the adjacent neighborhoods consist primarily of single-family dwellings, small multi-family housing structures, and neighborhood commercial facilities. Other nearby land uses include a school, two reservoirs, open space and neighborhood recreation.

4. Because Sutro Tower is located so close to residential structures, many San Francisco residents are concerned about potential health and safety hazards created by the Tower and any modifications to the Tower. In addition, in the years since the Tower's construction, residents have voiced a variety of complaints and concerns about the Tower, including complaints and concerns about the structural safety of the Tower, wind and cable noise, incidents of falling debris, persistent interference problems, and exposure to radiofrequency emissions. Residents are concerned about any modifications to the Tower that might aggravate these problems.

5. Sutro Tower supports antennas for analog broadcasting by ten television stations and four FM radio stations. The City first issued a conditional use permit (CUP) authorizing the construction of Sutro Tower in 1966. Construction of the Tower was completed in 1973. The Tower was built to comply with the 1969 San Francisco Building Code. Electric service to Sutro Tower is currently supplied by two 12-kilovolt feeder lines. Each feeder line serves an on-site 1500 kilovoltam (KVA) electrical transformer.

6. Sutro Tower, Inc., the project sponsor, proposes to install digital antennas on the Tower attached to a new steel beam that will be 125 feet long, 3 feet wide and 3 feet deep. This beam will be installed to hang between approximately 630 and 755 feet above ground level.

The addition of digital transmission facilities would also require an additional transformer for each of the two 12-kilovolt electric feeder lines.

7. The California Environmental Quality Act (CEQA) establishes the following state policy:

> [P]ublic agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and . . . the procedures required by [CEQA] are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects . . . . [I]n the event specific economic, social or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects. Cal. Pub. Res. Code (CPRC) §21002.

8. California law requires all public agencies, including cities, to adopt procedures to implement the requirements of CEQA and its accompanying regulations. CPRC § 21082.

9. CEQA mandates that a local agency apply state regulations to determine what level of environmental review is required before a project can be approved and constructed. The City may issue a "negative declaration" if the City determines on initial review that the project will not create a significant adverse impact on the environment. Where significant adverse environmental impacts are anticipated, the City must require the preparation of an Environmental Impact Report (EIR).

10. On September 12, 1996, Sutro Tower, Inc. filed an application for environmental evaluation of its proposal to install digital broadcasting capability at Sutro Tower. This application initiated the formal process of environmental review under CEQA. Given the need to investigate community concerns about health and safety problems related to the proposal, and given the potential for challenge to the issuance of a negative declaration,

Sutro Tower, Inc. indicated that it would not oppose proceeding immediately to the development of a full Environmental Impact Report. This decision was intended to expedite environmental assessment.

11. As the City's EIR coordinator for the Sutro Tower digital television application, it is my duty under state law to ensure that the EIR is adequate, accurate, and complete according to the standards prescribed by state law. CPRC §21082.1. I am responsible for coordinating and directing all staff and consultant work in preparation of the Environmental Impact Report. In this role, I work with the project sponsor and the environmental review consultant hired by the project sponsor; review and revise drafts prepared by the environmental review consultant; and, coordinate review of draft documents by other City departments with expertise in relevant areas of specialty.

12. One of my initial responsibilities as the City's EIR coordinator for any project is to determine the required scope of the analysis. In order to expedite environmental review, the Planning Department decided to forego preparation of an initial study and to immediately begin preparation of an EIR which would address all the issues that CEQA regulations require an EIR to address if their exclusion has not been justified in an initial study. The project sponsor did not object to this suggestion. I therefore determined that the EIR would need to address the following potential effects of the digital television project:

    - Visual effects;
    - Compatibility with existing zoning and plans;
    - Effects on nearby existing or planned land uses;

- Effects on nearby housing or commercial enterprises;
- Effects on transportation and circulation in the area;
- Effects on noise levels in the area;
- Effects on air quality, public services and utilities;
- Effects on biological resources, geology and soils, water quality, water quantity natural resources, and cultural resources;
- Growth inducing effects, and
- Hazardous materials.

In addition, based on my understanding of community concerns and the fundamental investigative purpose of the environmental review process required by CEQA, the EIR would need to address the potential health effects of exposure to radiofrequency radiation in the neighborhood surrounding Sutro Tower. In addition, CEQA requires an EIR to include an analysis of alternative locations for the project and any cumulative impacts of the project.

13. After initially selecting Woodward-Clyde Consultants, Sutro Tower, Inc. ultimately hired Maxwell & Associates (Maxwell) to prepare an EIR for the digital television project. Maxwell hired Dr. Peter Polson, Ph.D., to analyze the biological effects of radiofrequency radiation (RFR) and Hammet & Edison Consulting Engineers to analyze the project's potential effects on levels of radiofrequency radiation in the Sutro Tower area.

14. On September 14, 1996, Maxwell submitted to the Planning Department a preliminary draft report prepared by Dr. Peter Polson. However, Maxwell subsequently told me that it was not necessary to review this report. Instead, I was told that I could wait until a

second draft was prepared. I did not receive a second draft until January 21, 1997. A complete timeline of Maxwell's preparation and the City's review of the Preliminary Draft EIR and the Draft EIR is attached as Exhibit A to this declaration.

15. Under California law, an EIR must be published first in draft form. The public must be given at least 30 days to review and comment on a Draft EIR. CPRC § 21091.

16. A Draft EIR was published by the Planning Department on July 9, 1997. The Draft EIR concluded that the substantial weight of the evidence indicates that the proposed digital television project would have no significant adverse effects on the environment.

17. On July 24, 1997, the Planning Commission conducted a public hearing to take testimony on the Draft EIR. During public testimony, several witnesses requested extension of time for public comment on the DRAFT EIR. The Planning Commission rejected a request for a six-month extension; however, the Commission granted a 30 day extension because of the technical nature of some portions of the report, and because of Commissioners' concerns that summer vacation schedules had made it impossible for some interested parties to review the Draft EIR. The period for public comment on the Draft EIR closed on September 10, 1997.

18. In addition to the oral testimony presented to the Planning Commission, I received written testimony from individuals who live in the Sutro Tower area, from neighborhood associations, and from a proponent of an alternative site for digital television transmission to serve the San Francisco area. I estimate that I received 75 letters from 65 people, amounting to approximately 300 pages, 368 questionnaires describing problems neighbors

have experienced with Sutro Tower (see sample attached as Exhibit C to this declaration) and petitions signed by approximately 650 people.

19. Among the testimony I received, the items described in paragraphs 20 through 22 were especially notable.

20. Lloyd S. Cluff submitted written comments expressing concern about the structural safety of adding a 125-foot steel beam to Sutro Tower because the tower is located five miles from the San Andreas fault and 14 miles from the Hayward fault. Mr. Cluff identifies himself as having served as a member of the California Seismic Safety Commission for the past 12 years. He also served as a member of the California Telecommunications Seismic Risk Task Force from 1991 to 1992. Mr. Cluff noted that there are many homes, a school, and two reservoirs within the fall zone of Sutro Tower. Mr. Cluff cited a 1990 U.S. Geological Survey report that concluded there is a 70 percent chance of a magnitude 7 or greater earthquake from these two faults in the next two decades. Mr. Cluff testified that confidence in the safety and resiliency of steel structures, such as Sutro Tower, during earthquakes has declined significantly since 1988 as a result of damage to steel structures caused by the earthquake in Armenia in 1988, the Loma Prieta earthquake in the San Francisco Bay Area in 1989, the Northridge earthquake in southern California in 1994 and the Kobe, Japan earthquake in 1995. Mr. Cluff noted that because of the effects of these earthquakes on steel structures, revisions to the Uniform Building Code are under discussion. He urged the Planning Commission to procure a "full dynamic analysis" of Sutro Tower before approving the addition of a 125 foot beam to the tower. See testimony of Lloyd S. Cluff (without attachments) attached as Exhibit C to this

declaration. The Planning Department has asked the Department of Building Inspection to review these comments.

21. Graham & James, LLP, submitted testimony on behalf of Watson Communication Systems, Inc. (Watson) which owns and operates a telecommunication tower site on San Bruno Mountain in neighboring San Mateo County. Watson objected to the Draft EIR, alleging that it inadequately evaluated the opportunity to install facilities for transmission of digital television signals from San Bruno Mountain as an alternative to Mount Sutro. Watson indicated that it has received permits to construct a tower that could provide digital television broadcasts to serve the San Francisco area. Watson also objected to the Draft EIR's suggestion that the FCC considers transmission of digital television signals from Sutro Tower to be preferable to transmission from San Bruno Mountain. See testimony of Watson Communications attached as Exhibit D to this declaration.

22. Reed Super Submitted Testimony on behalf of the Twin Peaks Improvement Association (TPIA) and the Midtown Terrace Homeonwers Association(MTHOA). These neighborhood associations argued that the Draft EIR was inadequate because it required more information about the weight of the proposed Tower additions and their means of attachment to the Tower in order to assess the structural integrity of the Tower and its modifications. The testimony further complained about the inadequate analysis of the alternative location for digital transmission from San Bruno Mountain. See testimony of TPIA/MTHOA attached as Exhibit E to this declaration.

23. I am responsible for coordinating the preparation of a summary of comments and responses document which responds to all oral and written testimony received by the

Planning Department in response to the Draft EIR. California law requires the completion of the comments and responses document before the final EIR can be approved. I am in the process of preparing this document now.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 30, 1997

Paul Maltzer

Exhibits:

A Timeline: Sutro Tower Environmental Review Dates
B Sample: Questionnaire Testimony
C Testimony Submitted in Response to Draft EIR by Lloyd S. Cluff
D Testimony Submitted in Response to Draft EIR by Watson Communications
E Testimony Submitted in Response to Draft EIR by TPIA/MTHOA

SUTRO TOWER ENVIRONMENTAL REVIEW DATES

EE Application	9/12/96
Preliminary Draft Technical Report on Health Effects of RFR submitted to Planning for review/comment (then told by consultant not necessary to review; wait for second draft)	9/14/96
Second Draft Technical Report on Health Effects submitted for review by Planning and DPH	1/21/97
Preliminary Draft EIR 1 submitted for review by Planning and DPH	2/4/97
DPH comments on PDEIR 1 and technical report submitted to Planning	3/7/97
Comments on PDEIR 1 and background report returned to consultant, from Planning	3/10/97 & 3/14/97
PDEIR 2 submitted by consultant to Planning	6/19/97
Comments on PDEIR 2 returned to consultant	6/27/97
Prepublication DEIR submitted to Planning	¿6/30/97 or 7/1/97?
Comments on prepublication DEIR returned to consultant	7/3/97
DEIR published	7/9/97
Public Hearing on DEIR	7/24/97
Original close of comment period	8/11/97
Extension of comment period by Planning Commission	9/10/97

EXHIBIT A
TO THE DECLARATION OF PAUL MALTZER

I OPPOSE ANY EXPANSION OF SUTRO TOWER FOR THE FOLLOWING REASONS:

___ A suitable site for digital TV antennae already exists on Mt. San Bruno such that Mount Sutro will be obsolete and no longer needed.

___ I am concerned about a reduction in property values in adjacent neighborhoods.

___ I am concerned about the collapse of the Tower in the event of an earthquake

___ I am concerned about the collapse of the Tower in the event of a landslide as well as the weight of the Tower on the hill-side.

___ I am concerned about the structural failure of the tower.

___ I am concerned about projectiles from the Tower striking my neighborhood. (ie metal siding, bolts, wires, cables, tools, etc.)

___ I am concerned about any additional interference with telephones, radios, TV's, etc. which limit the use and enjoyment of my home.

___ I am concerned about the unknown health effects of combined analog and digital electromagnetic radiation.

___ I oppose continued use or additions to Sutro Tower absent the completion of an independent reliable epidemiological study pertaining to any and all related health effects which Sutro Tower and or its emissions are responsible for introducing into my residential neighborhood.

____ I oppose continued use or additions to Sutro Tower absent the completion of a comprehensive disaster preparedness plan by the City and County of San Francisco pursuant to the Master Plan which will examine the potential impacts of the tower on emergency response, upon the lives and health of the residents, and the mitigation plans needed to be put into place to combat the effects of the Sutro Tower on any emergency or evacuation plans.

___ I am concerned about the unknown effects of the tower upon emergency disaster plans and upon the structural integrity of neighboring reservoirs.

___ Sutro Tower is visually obtrusive and would like to see it phased out.

Name_____

Address_____ San Francisco, California 94____

Please send me a copy of the Revised EIR prior to approval, such that I may comment upon it. In addition, please add my name to the list of "Interested Parties" regarding any issue pertaining to Sutro Tower, Inc.

Signed: _____Date:_____ (over)

EXHIBIT B
TO THE DECLARATION OF PAUL MALTZER

In the past, Sutro Tower has impacted my life and or the lives of the occupants in my residence in the following manner :

On Dwelling ::

1. Electromagnetic ::

- Ω Television Reception Interference
- Ω Radio Reception Interference
- Ω Short Wave Radio Interference
- Ω Taping of Radio Or Cassettes Interference
- Ω VCR Playing Clarity
- Ω VCR Taping Clarity
- Ω Telephone Clarity
- Ω Answering Machine Clarity
- Ω Garage Door Malfunction
- Ω Spontaneous Power Surges
- Ω Car Alarm Malfunction
- Ω Other:_____

On Environment ::

2. Use and Enjoyment ::

- Ω Noise from :
  - Ω Night Repairs
  - Ω Day Repairs
  - Ω Cables blowing, Guy Wires
  - Ω Rust from Tower on property
- Ω Sandblasting Dust/Debris
- Ω Bolts, small objects falling
- Ω Metal siding falling on property
- Ω Metal siding falling near property
- Ω Painting Dripping on House
- Ω Paint Dripping on Car or other
- Ω Other:_____

Additional Comments, Questions, and Concerns Regarding Sutro Tower::

Lloyd S. Cluff

33 Mountain Spring Avenue
San Francisco, California 94114
Fax (415) 564-6697
Tel. (415) 564-9371

September 10, 1997

Hillary E. Gitelman
Environmental Review Officer
Planning Department
1660 Mission Street, 5th Floor
San Francisco, CA 94103-2414

Dear Ms Gitelman:

Subject: Earthquake Safety of Sutro Tower (in response to the Sutro Tower Digital Television (DTV) Draft Environmental Impact Report)

I am writing this letter to express my concern about the stability of the Sutro Tower during a large earthquake, and the safety of residents who live in the vicinity of the tower. I am concerned for two reasons: (1) the Sutro Tower is 5 miles from the San Andreas fault and about 14 miles from the Hayward fault. A 1990 US Geological Survey report concluded there is a 70 percent chance of a magnitude 7 or greater earthquake from these two faults in the next two decades, and (2) I am an earthquake expert who has considerable knowledge and experience regarding seismic safety, and I live in the proximity of the Sutro Tower.

My Professional Credentials

I have been a practicing professional in San Francisco in the earthquake field for more than 35 years. My experience includes work in geology, seismology, earthquake engineering, seismic safety, and public policy in California and elsewhere worldwide. I have investigated most major earthquakes around the world to learn first-hand of the performance of engineered structures during destructive earthquakes. I also have been involved in the technical evaluation of the siting, design, construction, and earthquake performance of numerous critical and essential facilities (the Sutro Tower is in these categories).

I have had the honor of serving as a Commissioner on the California Seismic Safety Commission for the past 12 years, and served as Commission Chairman from 1988 to 1990 and from 1995 to 1997. I was a member of the California Telecommunications Seismic Risk Task Force from 1991 to 1992, wherein we considered the safety and performance of telecommunications facilities during earthquakes. The National Academy of Sciences appointed me Chairman of

the National Research Council's Committee for the Symposium on Practical Lessons from the Loma Prieta Earthquake.

I was inducted into the National Academy of Engineering in 1978, and named a Fellow of the California Academy of Sciences in 1992. I have served as the President of the Earthquake Engineering Research Institute (1993 to 1995) and the President of the Seismological Society of America (1982 to 1984). I would be pleased to furnish a complete professional resume on request.

My Concerns

Based on investigations of more than 25 destructive earthquakes from 1957 through 1987, it was thought in the scientific and engineering community that well-designed and well-constructed steel structures, such as the Sutro Tower, always performed well; our confidence in the safety and resiliency of steel structures during earthquakes was very high. Since 1988, this confidence has deteriorated to an all-time low; presently, there is great debate about the adequacy and safety of many existing steel structures during large nearby earthquakes. The confidence in the seismic safety of steel structures (including structures such as the Sutro Tower) began to erode after our investigations of the earthquake in Armenia in 1988.

I was one of the experts invited by the Academy of Sciences of the Soviet Socialist Republics of Armenia and Georgia to assist them in their evaluation of the devastating Armenian earthquake. Although at magnitude 6.7 it was considered a moderate earthquake, it killed more than 25,000 people and destroyed many of the engineered structures within about 15 miles of the energy release. Attachment 1 is a photograph of a destroyed telecommunications (military, microwave, television, and telephone) tower similar to but smaller than the Sutro Tower. It snapped off about 20 feet above its base during the earthquake. Nearby, there was another such tower that had sustained similar damage. Our first rationalization of much of the earthquake damage from the Armenian earthquake was the inferior design and construction practices throughout the Soviet Union. Therefore, while surprising, the photographs I took of the toppled telecommunications towers did not attract much attention; we still had confidence in the earthquake performance of steel structures built in this country. The towers were about 10 km from the earthquake energy release, at the edge of what has become known as the "near source" or "near-field" zone; a zone where, depending on the circumstances, earthquake ground motion acceleration and velocity can be very severe. These forces are so severe in fact, that surprising damage recently

has been documented where none was expected by even the most competent structural engineers, including damage to moderate-to-tall steel structures and steel-reinforced concrete structures.

Less than a year after the Armenian, on October 17, 1989, the magnitude 7.0 Loma Prieta earthquake struck the San Francisco Bay Area. The earthquake was centered 60 miles from San Francisco and Oakland, therefore, it cannot be considered a test of our modern earthquake design and construction codes and standards, even though we were surprised at the damage to freeways, the Bay Bridge, and some of our modern steel-framed buildings. Attachment 2 is a photograph of a toppled KGO radio tower (for the emergency radio broadcast system) that I took during a helicopter reconnaissance after the Loma Prieta earthquake. The damage to the tower was a surprise and an embarrassment to KGO, because the emergency broadcast system was lost when it was needed most. It also surprised designers of steel towers, because steel-frame structures were expected to perform well during earthquakes. What we know now (but was not at first revealed by some steel-frame building owners), is that a number of Bay Area steel-frame buildings suffered serious damage during Loma Prieta.

On January 17, 1994, the moderate, magnitude 6.7 Northridge earthquake struck southern California. Not only did more freeway structures collapse, but investigations revealed that many steel-frame buildings suffered serious damage. Hundreds of millions of dollars have been spent by building owners in an attempt to correct the fractured steel buildings and bring them back to an acceptable level of safety. So far, the best structural engineers in the world do not understand why more than 200 steel-frame buildings were seriously damaged in the Los Angeles area. The City of Los Angeles requires steel frame structures to be inspected and repaired; however, they are in a quandary because the structural engineering profession has yet to reach consensus as to what to do about the steel-frame earthquake stability problem.

Exactly one year later, on January 17, 1995, a magnitude 6.9 earthquake struck Kobe, Japan, resulting in the loss of more than 5000 lives and the destruction of thousands of modern buildings. Some of the seriously damaged buildings experienced the same types of steel-frame damage as observed following the Northridge earthquake. Out of twelve recently built steel bridges along Osaka Bay, nine were damaged and could not be used during the emergency response phase following the earthquake, and several of the bridges experienced such severe damage that they took almost a year to repair at a cost of hundreds of millions of dollars. The failure of modern steel-frame structures during the